



SLOVENSKI STANDARD
SIST EN 13353:2004
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Solid wood panels (SWP) - Requirements

Massivholzplatten (SWP) - Anforderungen

Bois panneautés (SWP) - Exigences

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ICS:

79.060.99 Ö!` * ^Á•} ^Á [| z ^ Other wood-based panels

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 13353

June 2003

ICS 79.060.99

English version

Solid wood panels (SWP) - Requirements

Bois panneautés (SWP) - Exigences

Massivholzplatten (SWP) - Anforderungen

This European Standard was approved by CEN on 13 February 2003.

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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and United Kingdom.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Contents

	Page
Foreword.....	3
1 Scope	4
2 Normative references	4
3 Terms, definitions and abbreviated terms	5
3.1 Terms and definitions.....	5
3.2 Abbreviated terms for solid wood panels indicating their intended use.....	5
4 Requirements	6
4.1 Dimensional tolerances.....	6
4.2 Moisture content at despatch.....	6
4.3 Bonding quality.....	6
4.4 Biological durability.....	6
4.5 Mechanical characteristics	7
4.6 Formaldehyde release	7
5 Supplementary properties	8
6 Verification of compliance	8
6.1 General.....	8
6.2 External control.....	8
6.3 Factory production control.....	8
7 Marking	9
Annex A (normative) Properties for structural and non structural applications.....	10
Bibliography	11

[SIST EN 13353:2004](https://standards.iteh.ai/catalog/standards/sist/0ba3d777-fd29-4819-abb7-bd15a4d72be2/sist-en-13353-2004)
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Foreword

This document (EN 13353:2003) has been prepared by Technical Committee CEN/TC 112 “Wood-based panels”, the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by December 2003, and conflicting national standards shall be withdrawn at the latest by December 2003.

Annex A is normative.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and the United Kingdom.

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EN 13353:2003 (E)**1 Scope**

This European Standard specifies requirements for solid wood panels as defined in EN 12775 for use in dry, humid and exterior conditions as defined in service classes 1, 2 and 3 of ENV 1995-1-1:1993.

Additional information on supplementary properties for certain applications is also given.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN 310, *Wood-based panels — Determination of modulus of elasticity in bending and of bending strength.*

EN 318, *Wood-based panels — Determination of dimensional changes associated with changes in relative humidity.*

EN 322, *Wood-based panels — Determination of moisture content.*

EN 323, *Wood-based panels — Determination of density.*

EN 324-1, *Wood-based panels — Determination of dimensions of boards — Part 1: Determination of thickness, width and length.*

EN 324-2, *Wood-based panels — Determination of dimensions of boards — Part 2: Determination of squareness and edge straightness.*

EN 326-1, *Wood-based panels — Sampling, cutting and inspection — Part 1: Sampling and cutting of test pieces and expression of test results.*

EN 326-2, *Wood-based panels — Sampling, cutting and inspection — Part 2: Quality control in the factory.*

EN 335-2:1992, *Durability of wood and wood-based products — Determination of hazard classes of biological attack — Part 2: Application to solid wood.*

EN 594, *Timber structures — Test methods — Racking strength and stiffness of timber frame wall panels.*

EN 596, *Timber structures — Test methods — Soft body impact test of timber framed walls.*

ENV 635-4, *Plywood — Classification by surface appearance — Part 4: Parameters of ability for finishing, Guideline.*

EN 717-2, *Wood-based panels — Determination of formaldehyde release — Part 2: Formaldehyde release by the gas analysis method.*

EN 789, *Timber structures — Test methods — Determination of mechanical properties of wood-based panels.*

EN 1058, *Wood-based panels — Determination of characteristic values of mechanical properties and density.*

EN 1195, *Timber structures — Test methods — Performance of structural floor decking.*

ENV 1995-1-1:1993, *Eurocode 5 — Design of timber structures — Part 1-1: General rules and rules for buildings.*

EN 12775:2001, *Solid wood panels — Classification and terminology.*

EN 12871, *Wood-based panels — Performance specifications and requirements for load bearing boards for use in floors, walls and roofs.*

EN 13017-1, *Solid wood panels — Classification by surface appearance — Part 1: Softwood.*

EN 13017-2, *Solid wood panels — Classification by surface appearance — Part 2: Hardwood.*

EN 13183-2, *Moisture content of a piece of sawn timber – Part 2: Estimation by electrical resistance method.*

CEN/TS 13354, *Solid wood panels — Bonding quality — Test method.*

EN 13446, *Wood-based panels — Determination of withdrawal capacity of fasteners.*

EN 13986, *Wood-based panels for use in construction — Characteristics, evaluation of conformity and marking.*

3 Terms, definitions and abbreviated terms

3.1 Terms and definitions

For the purposes of this European Standard, the terms and definitions given in EN 12775:2001 and the following apply:

3.1.1

solid wood panel for use in dry conditions

panel intended for use in interior applications with no risk of wetting as defined in service class 1 of ENV 1995-1-1:1993 and biological hazard class 1 of EN 335-2:1992

NOTE Service class 1 is characterised by a moisture content of the material corresponding to a temperature of 20 °C and a relative humidity of the surrounding air exceeding 65 % for only a few weeks per year.

3.1.2

solid wood panel for use in humid conditions

panel intended for use in protected external applications as defined in service class 2 of ENV 1995-1-1:1993 (e. g. behind cladding or under roof coverings) and biological hazard class 2 of EN 335-2:1992. It is also capable of resisting weather exposure for short periods (e.g. when exposed during construction)

NOTE Service class 2 is characterised by a moisture content of the material corresponding to a temperature of 20 °C and a relative humidity of the surrounding air exceeding 85 % for only a few weeks per year.

3.1.3

solid wood panel for use in exterior conditions

panel intended for use in unprotected external applications as defined in service class 3 of ENV 1995-1-1:1993 and biological hazard class 3 of EN 335-2:1992. It is also capable of withstanding exposure to weathering conditions and liquid water, or water vapour in a damp but ventilated location where it can frequently attain a moisture content above 20 %

NOTE Service class 3 is characterised by a moisture content of the material higher than service class 2.

3.2 Abbreviated terms for solid wood panels indicating their intended use

SWP: Solid Wood panel

SWP/1: Solid wood panel for use in dry conditions according to 3.1.1

SWP/2: Solid wood panel for use in humid conditions according to 3.1.2

SWP/3: Solid wood panel for use in exterior conditions according to 3.1.3

EN 13353:2003 (E)

4 Requirements

4.1 Dimensional tolerances

The tolerances for the nominal length, width and thickness, thickness within the panel, edge straightness and squareness are given in Table 1. They relate to the moisture content at time of despatch for large and medium sized panels according to EN 12775 and shall be determined in accordance with EN 324-1 and EN 324-2 as appropriate.

Table 1 — Dimensional tolerances for both large and medium sized panels

Tolerances on nominal length and width ^a	Thickness ^a		Tolerance for	
	Tolerance within an single panel	Tolerance on nominal thickness	Edge straightness ^b	Squareness ^b
± 2,0 mm	0,5 mm	± 1,0 mm	1,0 mm/m	1,0 mm/m
^a Determined in accordance with EN 324-1 ^b Determined in accordance with EN 324-2				

4.2 Moisture content at despatch

At time of despatch the moisture content according to EN 322 shall be (8 ± 2) % for use in dry conditions, (10 ± 3) % for use in humid conditions and (12 ± 3) % for use in exterior conditions.

If another moisture is necessary e.g. due to regional climatic condition the appropriate moisture content has to be specified explicitly.

4.3 Bonding quality

[SIST EN 13353:2004](https://standards.iteh.ai/catalog/standards/sist/0ba3d777-fd29-4819-abb7-bd15a4d72be2/sist-en-13353-2004)
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4.3.1 General

The bonding quality shall be determined in accordance with CEN/TS 13354 after the appropriate pretreatment for use in dry, humid or exterior condition.

4.3.2 Single layer solid wood panel

The lower 5-percentile of the shear strength, calculated in accordance with EN 326-1, shall not be less than 2,5 N/mm².

The mean wood failure percentage of each panel shall be more than 40 %.

4.3.3 Multi layer solid wood panel

The lower 5-percentile of the shear strength calculated in accordance with EN 326-1 shall not be less than 0,8 N/mm².

The mean percentage wood failure of each panel shall be more than 40 %.

4.3.4 Adhesive

Where panels are intended for structural applications, a thermosetting adhesive shall be used for the bonding of the layers to each other.

4.4 Biological durability

The risk of attack for uses in dry, humid and exterior conditions is outlined in biological hazard classes 1, 2 and 3 of EN 335-2:1992. Guidance on factors affecting durability and on precautionary measures which may be considered necessary can be found in EN 335-2 and EN 460.

4.5 Mechanical characteristics

4.5.1 General

The mechanical properties of solid wood panels are determined according to their application.

For structural applications refer to 4.5.2.

For non-structural applications, refer to 4.5.3.

4.5.2 Structural applications

Solid wood panels for use in structural applications, shall comply with the requirements given in Table 2. The values in Table 2, shall be determined as lower 5-percentile following the principles of EN 326-1. Sampling of test pieces shall be carried out in accordance with the given test method.

NOTE Since according to EN 798 the number of test pieces of each panel is one, the value of this test piece represents the mean value of the panel and can be used for all statistical calculations where the mean value and the variation of the mean values of the panels are used. The variation within a panel and the according calculations cannot be done.

For determination of density the test piece for bending, as defined in EN 789, may be used instead of the small size test pieces as defined in EN 323.

Other properties for structural applications shall be determined in accordance with annex A.

Table 2 — Requirements for density, bending strength and modulus of elasticity in bending

Property	Test method	Nominal thickness mm		
		≤ 20	> 20 to 30	> 30 to 80
Density (kg/m ³)	EN 323	420	420	420
Bending strength perpendicular to the plane (N/mm²)				
Parallel to the grain direction of the outer layer	EN 789	32	27	10
Perpendicular to the grain direction of the outer layer	EN 789	5	5	5
Modulus of elasticity in bending perpendicular to the plane (N/mm²)				
Parallel to the grain direction of the outer layer	EN 789	9 000	6 500	5 000
Perpendicular to the grain direction of the outer layer	EN 789	600	400	500
NOTE The values 9 000 N/mm ² , 6 500 N/mm ² and 5 000 N/mm ² for 5-percentile values of modulus of elasticity correspond to mean values of about 11 000 N/mm ² , 8 000 N/mm ² and 6 000 N/mm ² .				

4.5.3 Non-structural applications

If mechanical properties are required they shall be provided according to annex A.

4.6 Formaldehyde release

For solid wood panels the formaldehyde release class E 1 or E 2 shall be given as specified in EN 13986.

The test pieces for the determination of formaldehyde release shall be taken perpendicular to the grain of the outer layer.